

A new species from the *Nematus lucidus* group (Hymenoptera: Tenthredinidae) in China

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Abstract: A new species in China, *Nematus baii* Liu, Li & Wei sp. nov., is described, which belongs to the *Nematus lucidus* group. The major characteristics of *N. lucidus* group are briefly discussed. A key to the three known species from this species group worldwide is provided.

Key words: Symphyta; Nematinae; taxonomy; key

中国突瓣叶蜂属红环突瓣叶蜂种团 *Nematus lucidus* group 一新种（膜翅目：叶蜂科）

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摘要：记述采自中国突瓣叶蜂属 *Nematus* Panzer, 1801 红环突瓣叶蜂种团 *Nematus lucidus* group 1 新种：白氏突瓣叶蜂 *Nematus baii* Liu, Li & Wei sp. nov.；记述了 *N. lucidus* group 的主要鉴别特征，并编制了 *N. lucidus* group 已知种类检索表。

关键词：广腰亚目；突瓣叶蜂亚科；分类；检索表

Introduction

Nematus Panzer, 1801 is a large genus of Nematinae in Tenthredinidae, and members are very difficult to identify. The World Catalog of Symphyta (Hymenoptera) recorded 259 species of *Nematus* (Blank *et al.* 2009, 2012; Taeger *et al.* 2010). Prous *et al.* (2014) proposed a new classification based on genetic data. In this paper, we follow this new classification.

Nematus lucidus (Panzer, 1801) is the type species of *Nematus*, and the *N. lucidus* group was first proposed by Hara (2017) to include two species, namely *N. lucidus* (Panzer, 1801) and *N. viburnum* Hara, 2017. Here, a new species from Gansu and Shaanxi in China is described, and a key to three species of this group worldwide is provided.

Material and methods

The specimens were examined with a Motic-SMZ-171 stereomicroscope. Adult images

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were taken with a Nikon D700 digital camera and Leica Z16APO separately. Series of images were montaged using Helicon Focus (©HeliconSoft). All images were further processed with Adobe Photoshop CS 11.0.

Morphological descriptions of new species are based on the holotype. The terminology of genitalia follows Ross (1945) and that of general morphology follows Viitasaari (2002), while for a few terms (e.g. middle fovea and lateral fovea), we follow Takeuchi (1952).

Specimens examined in this study are deposited in the Central South University of Forestry and Technology, Changsha (CSCS), China, including the holotype and paratypes of the new species.

Taxonomy

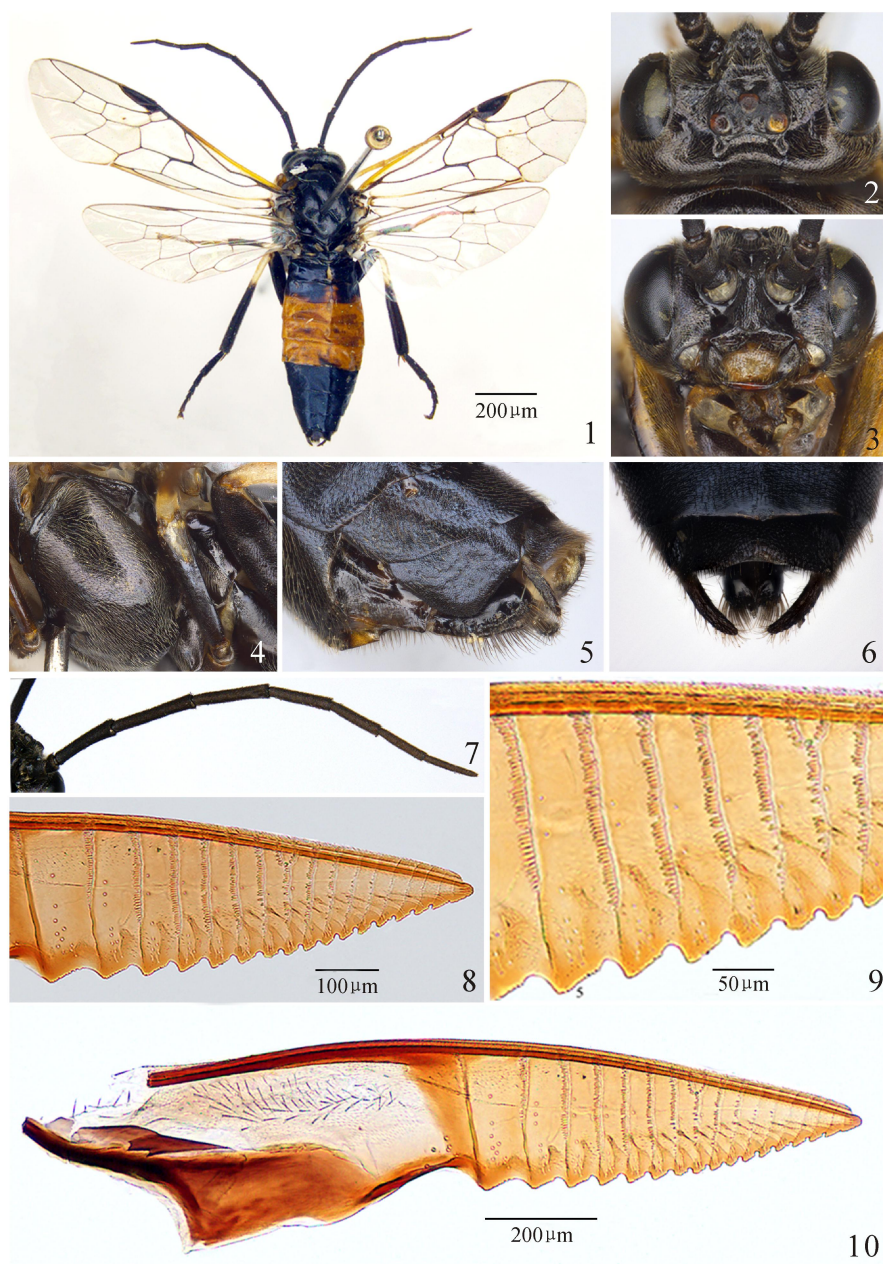
Nematus lucidus species group

Description. Species of the *N. lucidus* group having large body, at least terga 3–4 orange to reddish; sometimes pronotum, tegula, trochanters, femora, tibiae reddish, sometimes base of tibiae yellowish white; sheath hairs usually black brown; stigma black or black brown; all abdominal terga shiny, with weak and sparse punctures, microsculpture fine and very dense; postocellar area usually more 2 times broader than long; median mesoscutal groove shallow and fine; protarsomere 1 shorter than following 3 tarsomeres together; metatarsomere 1 shorter than following 4 tarsomeres together; tarsal claw with inner tooth slightly shorter than outer tooth; petiole of hind anal cell not longer than vein cu-a; in dorsal view, apex of cercus protruding beyond apical sheath; sheath hairs curved strongly; marginal sensillum of lancet very close to denticle; ctenidium usually narrow, the widest point of ctenidium less than half of annulus breadth; basal angle of tangium rounded; dorsal brim prominent or slightly prominent; radix shorter than lamnium.

The diagnostic characteristic of the *Nematus lucidus* group is the reddish brown terga of the abdomen, at least terga 3–4.

Key to species of the *Nematus lucidus* group

1. Pronotum, tegula, large parts of fore and middle trochanters, fore and middle femora, tibiae, large parts of hind trochanters, hind femora, hind tibiae except for apical margins, large parts of abdominal tergum 1, terga 2–4 reddish; tangium long and narrow relatively; cypsella very short; the widest point of ctenidium about 1/6 of annulus breadth. Europe.....*N. lucidus* (Panzer)
- . Characters different from those mentioned above; tangium short and relatively broad; cypsella slightly short; the widest point of ctenidium about 1/4 of annulus broad..... 2
2. Fore femora yellowish brown to black brown; fore tibiae, tarsi yellowish brown; clypeus emarginate triangle-shaped; POL : OOL : OCL = 7 : 8 : 5; postocellar area 2.2–2.4 times as broad as long; cell 2Rs 2 times as long as broad; in lateral view, sheath prominent as obtuse angle; sutures of annuli straight, not oblique; 3rd annulus 0.8 times as broad as 2nd annulus. China (Gansu, Shaanxi).....
.....*N. baii* Liu, Li & Wei **sp. nov.**
- . Fore femora apically brown; fore tibiae yellowish white on basal third, apical two-thirds ochre to dark brown; fore tarsi ochre, apically darkened; POL : OOL : OCL = 9 : 10 : 11; postocellar area 1.2–1.3 times as broad as long; cell 2Rs 1.5 times as long as broad; in lateral view, sheath prominent as camber; sutures of annuli oblique; 3rd annulus as broad as 2nd annulus. Japan; Korea.....*N. viburnum* Hara

Nematus baii Liu, Li & Wei sp. nov. (Figs. 1–10)

Figures 1–10. *Nematus baii* Liu, Li & Wei sp. nov., ♀, holotype. 1. Adult female, dorsal view; 2. Head of female, dorsal view; 3. Head of female, frontal view; 4. Mesopleuron and metapleuron; 5. Ovipositor sheath, lateral view; 6. Ovipositor sheath, dorsal view; 7. Antenna of female; 8. Lamnium; 9. Middle serrulae; 10. Lancet.

Female. Body length 10.5–12 mm. Body black; labrum, fore tibiae, tarsi and large parts of middle tarsi yellowish brown; large parts of pronotum, spot of tegula, apical 2/3 of middle tibiae and apical margins of five mesotarsomeres black brown; fore femora yellowish brown to black brown; ventral sides of hind trochanters and basal 1/3 of middle and hind tibiae yellowish brown; cenchrus dark; spot of center of abdominal tergum 2 and abdominal terga 3–5 orange. Body hairs silver brown, antenna hairs and sheath hairs dark brown. Wings hyaline, large parts of vein C yellowish brown, stigma black, the remaining veins largely black brown (Fig. 1).

Labrum slightly shiny, with small and slightly dense punctures, without microsculpture; clypeus shiny, punctures weak and sparse, without microsculpture; frons less shiny, shallowly and sparsely punctured, with a few sculptures; vertex and postocellar area with minute and slightly dense punctures, without microsculpture, shiny. Mesonotum shiny, with small and dense punctures, without microsculpture; mesoscutellum shiny, with small and slightly dense punctures, microsculpture fine; mesoscutellum appendage shiny, with small and sparse punctures, without microsculpture. Mesepisternum with minute and slightly dense punctures, without microsculpture, shiny; anepimeron smooth and shiny, without distinct puncture or microsculpture; katepimeron slightly shiny, lower side with weak and sparse punctures, microsculptures distinct and dense; metepisternum shiny, backside with weak and sparse punctures, microsculptures faint; metepimeron shiny, postmedian with a few punctures and microsculptures (Fig. 4). All abdominal terga shiny, with faint and sparse setigerous punctures, microsculpture fine and very dense. Ovipositor sheath shiny, punctures on lateral of apical sheath distinct and slightly sparse, microsculptures faint.

Base of labrum elevated, and apex slightly rounded; clypeus basal elevated, anterior margin of clypeus incised to approximately 1/2 length of clypeus, anterior margin of lateral corners obtuse; malar space 1.2 times as long as diameter of median ocellus; inner margins of eyes subparallel in frontal view, and distance between them 2.1 times as long as height of eyes (Fig. 3). Middle fovea elliptical, slightly deep, with a longitudinal groove at bottom; frons not elevated, anterior ridge elevated and curved, lateral ridge very low and obtuse; frons lateral furrows very wide and shallow; interocellar furrow broad and shallow, postocellar furrow slightly narrow and shallow; a fovea in front of middle ocellus slightly distinct, ocular sulcus undeveloped; POL : OOL : OCL = 7 : 8 : 5; postocellar area slightly elevated, without mesosulcus, about 2.4 times as broad as long, lateral furrows short and shallow, divergent backward; in dorsal view, vertex about 0.5 times as long as eyes, slightly convergent between lateral margins (Fig. 2). Antenna filamentous, 3rd antennomere slightly compressed, about as long as thorax and abdomen together, tapered towards apex; 2nd antennomere about 1.4 times as broad as long, 3rd antennomere shorter than 4th antennomere (4 : 5), and as long as 5th antennomere (Fig. 7). Median mesoscutal groove very shallow and fine; mesoscutellum flat, without middle ridge, length equal to width, almost as high as top of mesonotum in lateral view; mesoscutellum appendage about 1/4 length of scutellum, middle ridge very low and obtuse; cenchri distance about 0.9 times as long as breadth of a cenchrus. Protarsomere 1 slightly shorter than following 3 tarsomeres together; hind tibia compressed, inner apical spur 0.4 times as long as metatarsomere 1, hind tibia 1.4 times as long as hind tarsus, metatarsomere 1 about 0.7 times as long as following 4 tarsomeres together; tarsal pulvillus very small, tarsal claw with inner tooth slightly shorter than outer tooth. Subbase of vein M in

fore wings curved strongly; vein M longer than vein R + M obviously; fore wings with cross-vein cu-a joining cell 1M at basal 2/5, cell 2Rs 2.0 times as long as broad, and 1.7 times as long as cell 1R1, outer margin of cell 2Rs oblique, vein Rs vestigial, petiole of hind anal cell 0.8 times as long as vein cu-a, and cross-vein cu-a curved. Ovipositor sheath 1.2 times as long as metatarsomere 1 and 0.8 times as long as front tibia, apical sheath 1.3 times as long as basal sheath; in lateral view, sheath tapering toward apex (Fig. 5); in dorsal view, apex of cercus protruding beyond apical sheath (Fig. 6). Lancet with 17 serrulae (Fig. 10); each annulus with 2–3 marginal sensilla; 1st annular suture from base not curved, slightly oblique, 3rd–8th sutures straight, not oblique (Fig. 8); 2nd–12th sutures with ctenidium, the widest point of ctenidium about 1/4 of annulus breadth; cypsella short, deeply emarginate; tangium long and wide, 3.8 times as long as 1st basal annulus, radix 0.7 times as long as lamnium; basal angle rounded, dorsal prominent; middle serrulae at base as shown in Fig. 9.

Male unknown.

Holotype. ♀, **China**, Gansu, Tianshui City, Qinzhou District, Niangniangba River, 31-V-2006, Yule BAI leg. **Paratypes.** 1♀, **China**, Gansu, Tianshui City, Qinzhou District, Niangniangba River, 31-V-2006, Haiyan MA leg.; 1♀, **China**, Shaanxi, Xi'an City, Chang'an District, Jiwozi Village, 33°51.319'N, 108°49.193'E; alt. 1765 m, 27-VI-2008, Xun ZHU leg.

Etymology. The new specific epithet "*baii*" is derived from the collector of the holotype specimen by Mr. Yule BAI.

Variation. Posterior angle of pronotum, base of tegula black or black brown; dorsal side of or large parts of fore femora black brown; hind trochanters entirely black or ventral side yellowish brown; ocular sulcus undeveloped or developed weakly; fore wings with cross-vein cu-a joining cell 1M at basal 2/5 to 1/2.

Remarks. This new species is similar to *N. viburnum* Hara, 2017 from Korea and Japan, but can be distinguished from the latter by the above key.

Distribution. China (Gansu, Shaanxi).

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